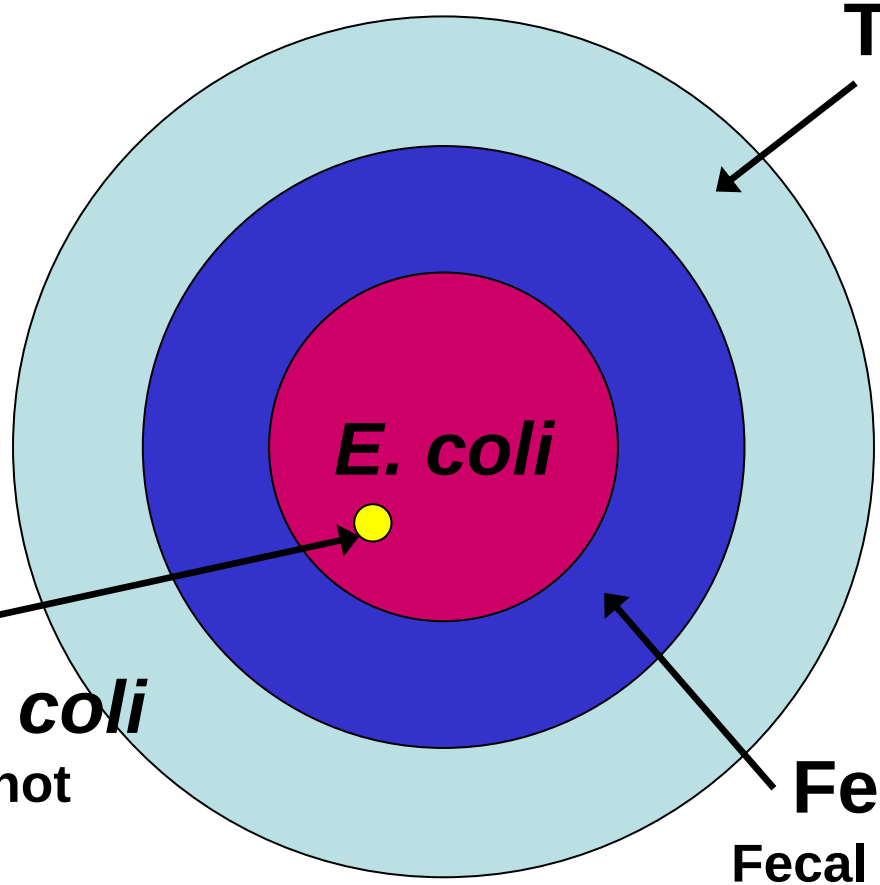
Total Coliform Rule Overview

Total Coliform Rule/Distribution System Rule Webcast

January 17, 2007

What is a Coliform?



Total Coliform

Total Coliform = Environmental Contamination

Pathogenic *E. coli*

Some of which are not detectable by Total Coliform detection methods

Fecal Coliform

Fecal Coliform & *E. coli* = Fecal Contamination

Why We Use **Indicators**

- We Use **Indicator Organisms**
  - Indicate potential presence of disease-causing organisms
- Why?
  - There are hundreds of pathogens…
  - Many cannot be detected by existing tests
  - Others require specific tests ⇨ resources
- Total Coliform as an Indicator
  - Advantages:
    - Total coliform (TC) is a general Indicator of a breach in water system integrity
    - Analytical methods are simple and affordable
  - Limitations:
    - Total coliform may grow in distribution systems (biofilm) so cause of potential contamination not known
    - TC occurrence provides no definitive linkage to public health risk

Purpose of TCR (as Stated in 1987 proposal)

- To evaluate the effectiveness of treatment
- Determine integrity of the distribution system
- Signal the possible presence of fecal contamination

What is an **MCL**?

- Maximum Contaminant Level (MCL)
- The highest level of a contaminant that is allowed in drinking water. MCLs are enforceable standards.

Total Coliform Rule (TCR) Components

- Written Sample Siting Plans
- Monthly Maximum Contaminant Level (MCL): Uses Presence/ Absence of Total Coliforms
  - Repeat Testing
- Acute MCL: Testing for Fecal Coliforms or *E. coli*
- Sanitary Surveys for Systems Taking Fewer Than 5 Samples Per Month
- Public Notification

Public Water Systems Regulated by the Total Coliform Rule

- Community Water Systems (CWS)
  - Ex., towns and cities, universities, etc. with their own water systems for residents
- Noncommunity Water Systems (NCWS)
  - Ex., restaurants, schools, factories, etc., with their own water systems
- See legal definitions of these in code of federal regulations hand-out included in background materials
  - 40 CFR 141.2

TCR Routine Monitoring

- Representative sites subject to state review and revision
- Regular time intervals for systems > 4,900 people
- Systems with < 4,900 may collect all samples on a single day if they are taken from different sites
- Sampling frequency based on population served and system type
  - For Community Water Systems 1- 480 samples per month depending on size
  - For noncommunity water systems using surface water or ground water under the direct influence of surface water, same as for community water systems
  - For noncommunity water systems using ground water and serving >1000 people – same as for community water systems
  - For noncommunity water systems using ground water and serving 1000 people or less – quarterly sampling

Criteria for Reduced Routine Sampling

- States can reduce community water system monitoring to quarterly if…
  - the system serves 25-1000 people and has no history of total coliform contamination in its current configuration AND
  - a sanitary survey conducted in the past five years shows that the system is supplied solely by a protected ground water source and is free of sanitary defects
- States can reduce noncommunity water system monitoring to annual if…
  - the system uses ground water, serves 1000 people or fewer, and a sanitary survey shows that the system is free of sanitary defects

Criteria for Increased Routine Sampling

- Systems collecting fewer than 5 routine samples per month and having one or more total coliform positive samples in one month, must collect at least 5 routine samples during the next month unless:
  - State performs a site visit and determines that additional sampling and or correction is not needed or
  - State determines why the total coliform sample was positive and establishes that the system has corrected or will correct the problem

TCR REPEAT Monitoring Requirements (1)

- The original sample must be tested for EC or FC
- Within 24 hours of learning of a total coliform-positive ROUTINE sample, at least 3 REPEAT samples must be collected and tested for TC
  - One REPEAT from original tap
  - One REPEAT within 5 service connections upstream
  - One REPEAT within 5 service connections downstream
- If the total coliform-positive sample occurs at the end of the distribution system, the State may waive the +/- 5 service connection requirement and take repeat samples from the same tap
- Systems that collect ≤ 1 ROUTINE per month must collect a 4th REPEAT sample

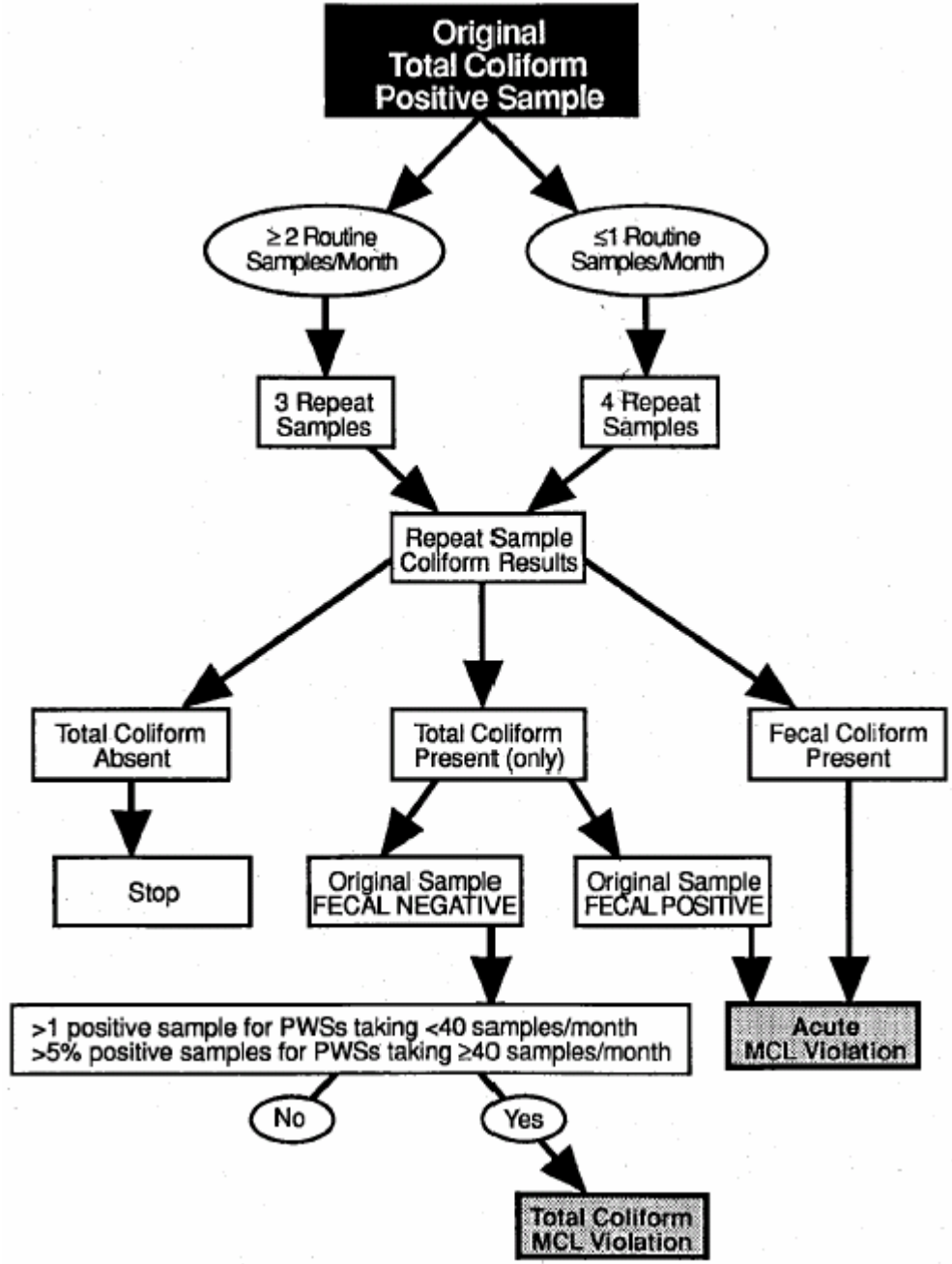
TCR REPEAT Monitoring Requirements (2)

- If any REPEAT sample is total coliform-positive
  - Must test the total coliform-posiitve sample for either *E. coli* or fecal coliforms
  - Must collect another set of REPEAT samples unless the MCL has already been violated and the system has notified the state
  - Systems with one service tap may collect samples over 4 days or collect a larger repeat sample volume (at least 300 or 400mL, depending on routine monitoring frequency)

Compliance

- The results of ROUTINE and REPEAT samples are used to calculate compliance
  - Determined each month a system serves water to the public or each month that sampling occurs (for those systems on reduced monitoring)

Determining Coliform Maximum Contaminant Level Violations



What are the Public Notification and Reporting Requirements?

- Monthly MCL violation
  - Notify State by end of next business day after the system learns of the violation
  - Notify public per Public Notification Rule: Tier 2 Public Notification (30-day notice) except where fecal contamination is found; then Tier 1 PN (within 24 hours)
- Systems with routine or repeat samples that are fecal coliform or *E.coli* positive must notify State by the end of the day they are notified of the result
- Monitoring violations must be reported to the State within 10 days after the system discovers the violation